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PTEROPHORUS SCHÄFFER IN THE ETHIOPIAN REGION (LEPIDOPTERA: PTEROPHORIDAE: PTEROPHORINAE): NEW SPECIES AND CHECKLIST

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Pterophorus dallastai sp. n., *P. uzungwe* sp. n. and *P. massai* sp. n. are described. A provisional checklist of the Ethiopian *Pterophorus* species is given, with notes on all species. A lectotype is designated for *P. cleronoma* (Meyrick). *P. centrocrates* (Meyrick) is synonimised with *P. rhyparias* (Meyrick). The status of *P. endophaea* (Meyrick) and *P. bacteriopa* (Meyrick) is discussed.

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Keywords. – Lepidoptera; Pterophoridae; *Pterophorus*; new species; Africa.

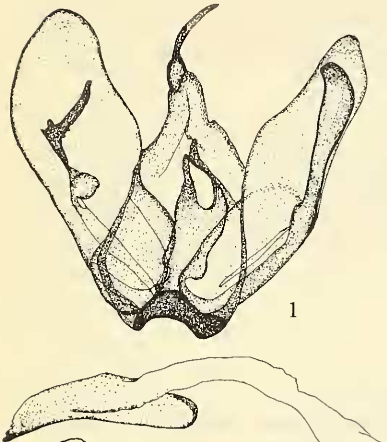
When the opportunity arose a number of Ethiopian Pterophoridae from the collections of the Zoological Museum of the University of Copenhagen (ZMUC), the Museum National d'Histoire naturelle, Paris (MNHN) and the Royal Museum of Central Africa in Tervuuren (MRAC) were examined. The results are here combined with data obtained from the collection of the British Museum of Natural History, London (BMNH), the Instituut voor Taxonomische Zoologie, Amsterdam (ZMAN) and the authors' collection (CG). Some of the specimens resembled, on superficial examination, palaearctic species. A closer examination of these species, however, showed a considerable variability, especially in the genitalia. This was particularly so in the genus *Pterophorus*, the subject of this publication. The species have usually poorly marked wings, which show a colour, ranging from purely white to pale grey-brown. Especially in the group of purely white specimens examination of the genitalia is essential. It is to be expected that more species will be recognized if more material from this region becomes available.

The genus *Pterophorus* has its main distribution centre in the Palaearctic region. A high number of species (approximately 60) is known from West and Central Europe, the Mediterranean area, Turkey and adjacent areas. From there the genus has a continuous distribution into the Southeast Asiatic region. Apart from Africa, further a few species are recorded from the Pacific area and the new world.

Literature on the african representatives of the genus *Pterophorus* is scattered over a few smaller publications and mainly comprises single descriptions of species, without illustrations of externals or genitalia. Bigot (1969), in his review of the collection of MRAC, describes and illustrates the specimens in this collection, in this way fixing the new species described by him accurately. Since then, Bigot has given his attention mainly to the fauna of Madagascar. Only Arenberger (1986) and Gielis (1990) have published since on the Ethiopian fauna, but on other subfamilies: Agdistinae and Platyptiliinae.

Provisional checklist of Ethiopian *Pterophorus*

Pterophorus Schäffer, 1766
  Aciptilia Hübner, [1825]
  Merrifieldia Tutt, 1905
  Porrittia Tutt, 1905
  Alucita auct., nec Linnaeus, 1758
1. *albidus* (Zeller, 1852) **comb. n.**
2. *rhyparias* (Meyrick, 1907) **comb. n.**
   centrocrates (Meyrick, 1933) **syn. n.**
3. *ischnodactyla* (Treitschhe, 1833)
4. *endophaea* (Meyrick, 1930) **comb. n.**
5. *bacteriopa* (Meyrick, 1922) **comb. n.**
6. *ceraunia* (Bigot, 1969) **comb. n.**
7. *lampra* (Bigot, 1969) **comb. n.**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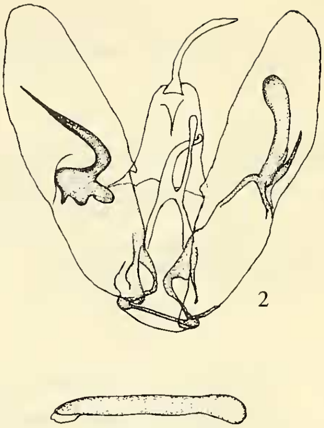
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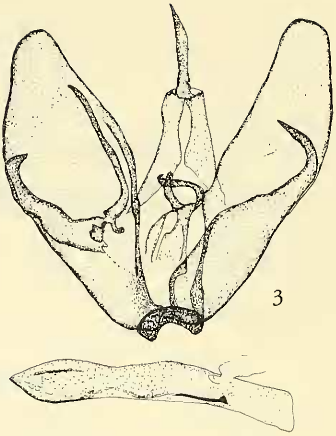
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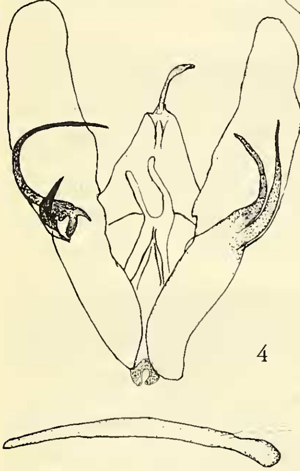
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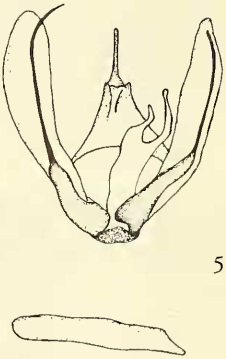
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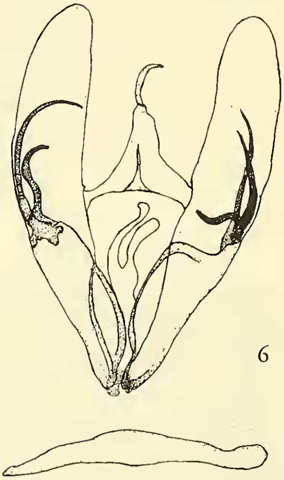
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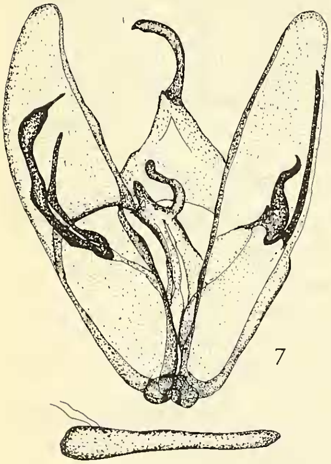
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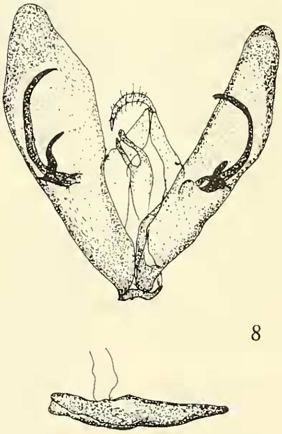
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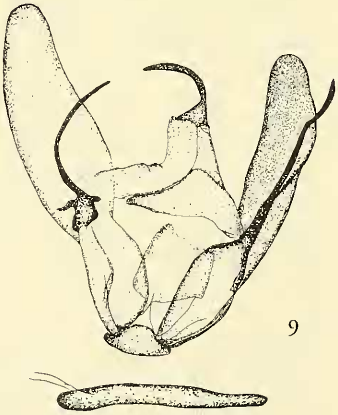
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8. *spissa* (Bigot, 1969) comb. n.
9. *lindneri* (Amsel, 1963) comb. n.
10. *candidalis* (Walker, 1864) comb. n.
11. *massai* sp. n.
12. *uzungwe* sp. n.
13. *dallastai* sp. n.
14. *cleronoma* (Meyrick, 1920) comb. n.

Taxonomic treatment

Pterophorus Schäffer, 1766

Type-species: *Phalaena Alucita pentadactyla* Linnaeus, 1758

Diagnosis. – Forewing cleft from ½ or less. Top of lobes acute, without a terminal margin. R1 absent, R4 and R5 fused, M3 and CU2 forked or fused. Hindwing without a scale-tooth.
Male genitalia asymmetrical, with asymmetrical costal processes.
Female genitalia with a blister-like bursa copulatrix in which no, one or two signa, an often pronounced vesica seminalis, and often absent apophyses anteriores.

1. *Pterophorus albidus* (Zeller, 1852) comb. n.
(figs. 1, 10)

Aciptila albida Zeller, 1852: 397.

Diagnosis. – The species is characterized by the faint yellow colour. Male genitalia with a hooked costal process in the left valve and a large club-like process in the right valve. The female genitalia have the junction between the ductus bursae and the bursa copulatrix in the shape of a bulging protrusion with numerous sclerotized ridges.

Remarks. – This species has originally been described from South Africa. This species can be easily recognized by its yellowish-white to greyish-white colour and the minute punctuation. After studying the male (fig. 1) and female (fig. 10) genitalia, the species turned out to have a wide distribution into the Indo-Australian region. Specimens have been examined from: Republic of South Africa, Zimbabwe, Kenya, Zaire, Tanzania, Gambia, Côte d'Ivoire, Vietnam, Indonesia, New Guinea.

Figs. 1-9. *Pterophorus* spp., male genitalia. – 1, *P. albidus* (Zeller) Rep. of S. Africa, slide CG 1694 (ZMAN); 2, *P. rhyparias* (Meyrick), British East Africa, slide CG 1870 (MNHN); 3, *P. ischnodactyla* (Treitschke, 1833). Rep. of S. Africa, slide CG 1695 (ZMAN); 4, *P. ceraunia* (Bigot), paratype, Zaire, slide Bigot (MRAC); 5, *P. lampra* (Bigot), paratype, Zaire, slide Bigot (MRAC); 6, *P. spissa* (Bigot), Central African Republic, slide CG 1878 (MNHN); 7, *P. candidalis* (Walker), Ethiopia, slide CG 1879 (MNHN); 8, *P. dallastai* sp. n., holotype; 9, *P. uzungwe* sp. n., holotype.

2. *Pterophorus rhyparias* (Meyrick, 1907) comb. n.
(figs. 2, 11)

Alucita rhyparias Meyrick, 1907: 489. Lectotype ♀ (here designated): Rep. of S. Africa, Transvaal, Pretoria (Janse), genitalia slide BM 17993 (BMNH) [examined].
Alucita centrocrates Meyrick, 1933: 425. Holotype ♂: Belgian Congo (Zaire), N.E. Kivu, La Mutura, iii (Seydel), genitalia slide Bigot (MRAC) [examined]. **Syn. n.**

Diagnosis. – The species is characterized by the pale ochreous-white colour with some small black dots along the costa and dorsum of both forewing lobes. Male genitalia (fig. 2) with a long and short costal process in the left valve and a large club-like process in the right valve. The female genitalia (fig. 11) shows a distinct crescent-shaped distal margin of the 7th tergite and a many folded appearance of the ductus bursae.

Variation. – The colour of the species ranges from grey-white to pale ochreous-white. The number of dots on the forewing may be reduced.

Distribution. – Rep. of S. Africa, Zaire, Kenya, Tanzania.

Remarks. – Since the type-specimens of *P. rhyparias* and *centrocrates* are respectively a female and a male, the synonymy, suggested by Arenberger (personal communication) could only be proven by additional material. The evidence was found in a small series, present in ZMUC, where both sexes are present.

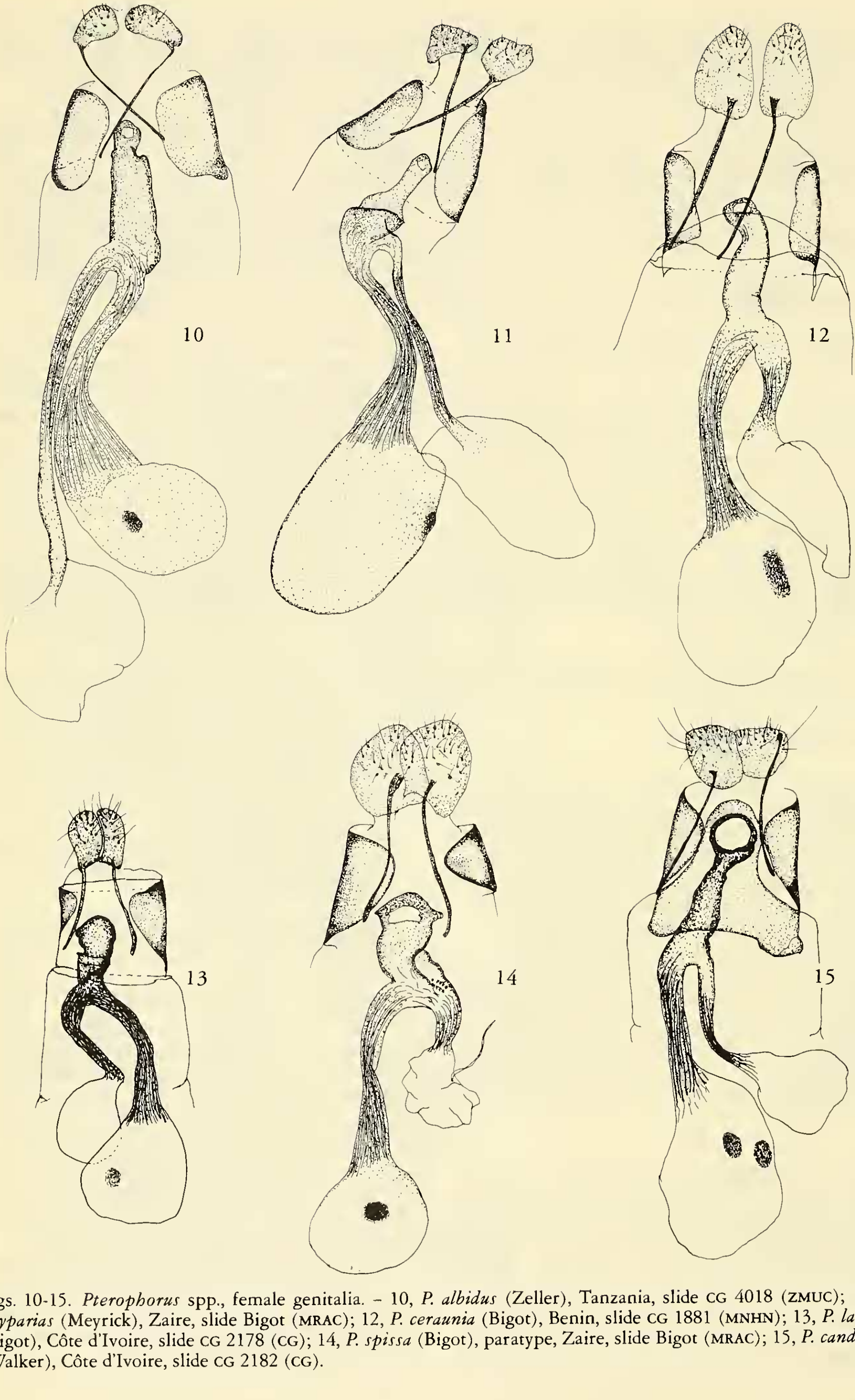
This species is difficult to separate from the next, *P. ischnodactyla* Treitschke, and can only be distinguished by the distinct genitalia.

3. *Pterophorus ischnodactyla* (Treitschke, 1833)
(fig. 3)

Alucita ischnodactyla Treitschke, 1833: 223.

Diagnosis. – The species is characterized by the pale ochreous-white colour and the small black dots along the costa and dorsum of the forewing. Male genitalia (fig. 3) with a widely forked costal process in the left valve and a hooked single process in the right valve. The female genitalia show an excavated shape of the distal margin of the 7th tergite, the ductus bursae is bulged out, with hardly any transverse ridges.

Remarks. – The Zoological Museum, Amsterdam (ZMAN) holds a specimen from the Republic of South Africa, Bloemfontein, 30.i.1951 (Ee), genitalia CG 1695. This specimen represents the sole verified African record of the species known to me.



Figs. 10-15. *Pterophorus* spp., female genitalia. – 10, *P. albidus* (Zeller), Tanzania, slide CG 4018 (ZMUC); 11, *P. rhyparias* (Meyrick), Zaire, slide Bigot (MRAC); 12, *P. ceraunia* (Bigot), Benin, slide CG 1881 (MNHN); 13, *P. lampra* (Bigot), Côte d'Ivoire, slide CG 2178 (CG); 14, *P. spissa* (Bigot), paratype, Zaire, slide Bigot (MRAC); 15, *P. candidalis* (Walker), Côte d'Ivoire, slide CG 2182 (CG).

This means an extension of the distribution from the Mediterranean area towards the south of Africa.

4. ***Pterophorus endophaea*** **(Meyrick, 1930) comb. n.**

Alucita endophaea Meyrick, 1930:576.

Distribution. – Mozambique.
Remarks. – See under *P. bacteriopa*

5. ***Pterophorus bacteriopa*** **(Meyrick, 1922) comb. n.**

Alucita bacteriopa Meyrick, 1922: 41.

Distribution. – Tanzania.
Remarks. – *P. endophaea* and *P. bacteriopa* have not been examined, since I was unable to locate the type specimens. The description of both species indicates a relationship with the difficult to separate species *P. rhyparias* and *P. ischnodactyla.* A synonymy based on the descriptions is suggestive, but not proven yet.

6. ***Pterophorus ceraunia*** **(Bigot, 1969) comb. n.**
(figs. 4, 12)

Aciptilia ceraunia Bigot, 1969: 204.

Diagnosis. – The species belongs to the group of white species, with distinct black fringe markings. Differs in male genitalia (fig. 4) in having an asymmetrical pair of costal processes in the left valve and an equal long pair of processes in the right valve. In female genitalia (fig. 12) in having long ductal, longitudinally ridged, segments in both the junctions to the bursa copulatrix as to the vesica seminalis. Antrum longitudinal.
Distribution. – Zaire, Benin.

7. ***Pterophorus lampra*** **(Bigot, 1969) comb. n.**
(figs. 5, 13)

Aciptilia lampra Bigot, 1969: 204.

Diagnosis. – The forewings are purely white with some black scales near the base and inner margin of the first lobe. Differs in male genitalia (fig. 5) in having a single costal process in the left valve; slightly longer than the valve and a single long costal process in the right valve which is slightly shorter than the valve, in female genitalia (fig. 13) in having an arched 7th tergite, with the lateral positioned antrum, laterally progressing via the short ductus bursae into the blister-like bursa copulatrix.
Distribution. – Zaire, Gabon, Côte d'Ivoire.

8. ***Pterophorus spissa*** **(Bigot, 1969) comb. n.**
(figs. 6, 14)

Aciptilia spissa Bigot, 1969: 202.

Diagnosis. – Forewings pure white, with small black spots at the inner margin of both lobes. The fringes show a distinct black and white pattern. Differs in male genitalia (fig. 6) in having two costal processes in the left valve, of which the shorter is ⅔th of the length of the longer. In the right valve two costal processes of equal length and a small transverse, short hook; in female genitalia (fig. 14) in having the ductus bursae slightly longer than the ductus to the vesica seminalis. Antrum large, almost square.
Distribution. – Zaire, Central African Republic.

9. ***Pterophorus lindneri*** **(Amsel, 1963) comb. n.**

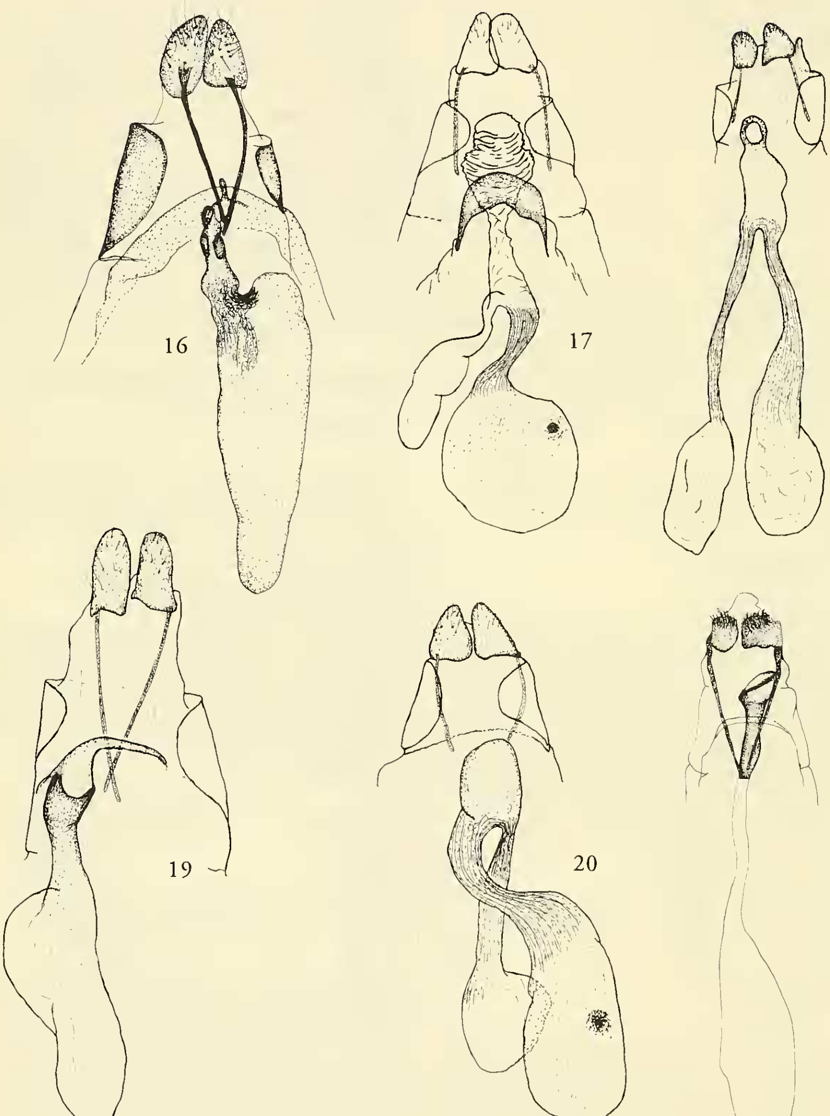
Aciptilia lindneri Amsel, 1963: 6.

Diagnosis. – The species is shining white, without any dark scales. Bursa copulatrix without a signum.
Male genitalia. – Unknown.
Female genitalia. – See diagnosis.
Distribution. – Ethiopia.
Remarks. – I have not examined the type-specimen, since the description by Amsel (1963) is adequate. It indicates the absence of a signum, which character differentiates the species from all its allies, which have one or two rosette-like signa in their bursa copulatrix.

10. ***Pterophorus candidalis*** **(Walker, 1864) comb. n.**
(figs. 7, 15-17)

Aciptilus candidalis Walker, 1864: 948.

Redescription. – Wingspan 15-28 mm. Head white. Palpae short, white and greyish at top. Antennae white, shortly ciliated. Thorax, mesothorax, tegulae and abdomen white. Legs white. Spurs of unequal length. Forewings cleft from $^{2}/_{5}$, colour white with a faint yellowish grey gloss. Sparse dark scales at the base of the cleft and near the apex of the first lobe. Fringes white, at dorsum of both lobes with two faint greyish interruptions. Hindwings white. Fringes white, at dorsum of second lobe a greyish interruption.
Male genitalia (fig. 7). – Valvae asymmetrical. In



Figs. 16-21. *Pterophorus* spp., female genitalia. – 16, *P. candidalis* (Walker), Chad, slide CG 2186 (CG); 17, Idem, Tanzania, slide CG 4020 (ZMUC); 18, *P. dallastai* sp. n., paratype, slide CG 1851 (MRAC); 19, *P. massai* sp. n., holotype, 20; *P. uzungwe* sp. n., paratype, slide CG 4040 (ZMUC); 21, *P. cleronoma* Meyrick, paraílecítotype, slide Bigot (MNHN).

right valve a pair of saccular spines; the ventral spine twice as long as the centrally placed spine. The left valve with two saccular spines; the ventral spine abruptly ending in a slender, acute top. The dorsal spine slender, length $^4/_5$th of the length of the ventral spine. Tegumen simple. Uncus slender, of moderate length. Vinculum arched. Aedeagus straight.

Female genitalia (figs. 15-17). – Antrum in shape of a slender rectangular plate, with a rounded top around a small hole. Ductus bursae and ductus seminalis well-developed with longitudinal ridges. Bursa copulatrix vesicular, with a single rosette-like signum.

Variation. – The female genitalia show variation in the length of the ductus seminalis. In specimens from Côte d'Ivoire (fig. 15) it is longer than the ductus bursae; from Chad and Ethiopia (fig. 16) of equal length, and in Tanzania (fig. 17) shorter than the ductus bursae.

Distribution. – Ethiopia, Kenya, Tanzania, Zaire, Chad, Côte d'Ivoire, Sierra Leone.

Remarks. – The type specimen from Sierra Leone (BMNH) is missing its abdomen. After comparing with the specimens from areas relatively close to the type locality, I agree with Bigot (1969) about the identity of the species.

11. ***Pterophorus dallastai*** sp. n.
(figs. 8, 18)

Type material. – Holotype ♂: Zaire [Congo Belge], P. N. A., Secteur Tschiaberimu, Mont Kamatondi près Kizungu, 2850 m., 22.iv.1955 (Vanschuytbroeck & Fontein, no. 12785), genitalia slide CG 1850 (MRAC). – Paratypes: 1 ♀, Zaire [Congo Belge], P. N. A., Secteur Tschiaberimu, Mont Musimba près Musabaki, 2450 m., 25.iii.1954 (Vanschuytbroeck & Synave, no. 7830), genitalia slide CG 1849 (MRAC); 2 ♀, Zaire [Congo Belge], P. N. A., Secteur Tschiaberimu, Riv. Musavaki, affl. Talya Nord, 2720 m, 26-29.iii.1954 (Vanschuytbroeck & Synave, no. 7828-29), genitalia slides CG 1851, 1852 (MRAC, CG).

Diagnosis. – The species is closely related to *P. candidalis* (Walker). It is characterized by the slightly ochreous tinge of the forewing, the saccular spines in the male genitalia and the shape of the antrum in the female genitalia.

Description. – Male, female. Wingspan 24-28 mm. External characters as in *P. candidalis* (Walker). The colour of the forewings is slightly ochreous tinged.

Male genitalia (fig. 8). – Valvae asymmetrical. Right valve narrow, lanceolate, with a long curved and a short stout saccular spine. Left valve widening towards ¾th of valve length; with a long curved and a short, wavy saccular spine. Tegumen bilobate. Uncus slender, moderate. Vinculum narrow, arched. Aedeagus tube-like, towards top gradually narrowing.

Female genitalia (fig. 18). – Antrum large, rounded, without a central hole. Ductus bursae longer than ductus seminalis, both ducti with longitudinal ridges. Bursa copulatrix vesicular, with a single rosette-like signum.

Variation. – The specimens show some variation in the intensity of the black scaling on the forewings.

Biology. – The moths were collected in March and April. Immature stages unknown.

Distribution. – Zaire.

Etymology. – A noun in genitive case, named in honour of Dr. U. Dall'asta, curator of Lepidoptera in MRAC.

12. ***Pterophorus massai*** sp. n.
(fig. 19)

Type material. – Holotype ♀: Kenya (Afr. Or. Angl.), Nairobi, Plaine Massai, viii.1904 (Alluaud), genitalia slide CG 1875 (MNHN).

Diagnosis. – The species is closely related to *P. candidalis* (Walker) and *P. dallastai* Gielis, but characterized by the female genitalia: the ratio of the length of the ductus bursae and the ductus seminalis is three to one.

Description. – Female. Wingspan 25 mm. External characters as in *P. candidalis* (Walker).

Male genitalia. – Unknown.

Female genitalia (fig. 19). – Antrum large, ending roof-like, with an oval hole. Ductus bursae three times longer than ductus seminalis, both with longitudinal ridges. At the junction of the ductus bursae and ductus seminalis two rows of small spines. Bursa copulatrix vesicular, with a rosette-like signum.

Biology. – The moth was collected in August. Immature stages unknown.

Distribution. – Kenya.

Etymology. – *Massai*, a noun in apposition, named after the type locality.

13. ***Pterophorus uzungwe*** sp. n.
(figs. 9, 20)

Type material. – Holotype ♂: Tanzania, Uzungwe Mts., Mwanihane Forest above Sanje, 1000 m, 1.viii.1981 (Stoltze & Schaff), genitalia slide CG 4039 (ZMUC). Paratype ♀: same locality and data, genitalia slide CG 4040 (CG).

Diagnosis. – The species is characterized by the shape of the saccular arms in the male and the double signum in the female. The size is relatively small for species of its group.

Description. – Male, female. Wingspan 18-19 mm. External characters as in *P. candidalis* (Walker).

Male genitalia (fig. 9). – Valvae asymmetrical. Right valve with a long, almost straight, saccular spine. Left valve with a curved saccular spine, with two small lateral thorns. Tegumen bilobate. Uncus slender, moderate. Vinculum rather wide. Aedeagus tube-like.

Female genitalia (fig. 20). – Antrum three times longer than wide, club-like, with a large central distal hole. Ductus bursae and ductus seminalis of equal length, both with longitudinal ridges. Bursa copulatrix with two rosette-like signa.

Biology. – The moths were collected in August. Immature stages unknown.

Distribution. – Tanzania.

Etymology. – *Uzungwe*, a noun in apposition, named after the type locality.

14. *Pterophorus cleronoma* (Meyrick, 1920) (fig. 21)

Alucita cleronoma Meyrick, 1920: 41. Lectotype ♀ (here designated): Brit. E. Africa, Kenya, Mt. Kenya, i-ii.1912 (Alluaud & Jeannel), genitalia slide BM 17987 (BMNH) [examined].

Other material examined. – Paralectotype ♀: locality and data as lectotype, genitalia slide Bigot (MNHN) [examined].

Diagnosis. – The species is characterized by the shape of the female genitalia. Especially the gradually narrowing antrum, in combination with the absence of a signum is diagnostic.

Female genitalia (fig. 21). – Antrum gradually narrowing. Ductus bursae slender. Bursa copulatrix vesicular. No signum. Apophyses anteriores absent. Apophyses posteriores three times longer than papillae anales.

Distribution. – Kenya.

Remarks. – In his description Meyrick did not designate a holotype. Both BMNH and MNHN appeared to hold a specimen labelled 'type', the BMNH specimen is herewith designated as lectotype.

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